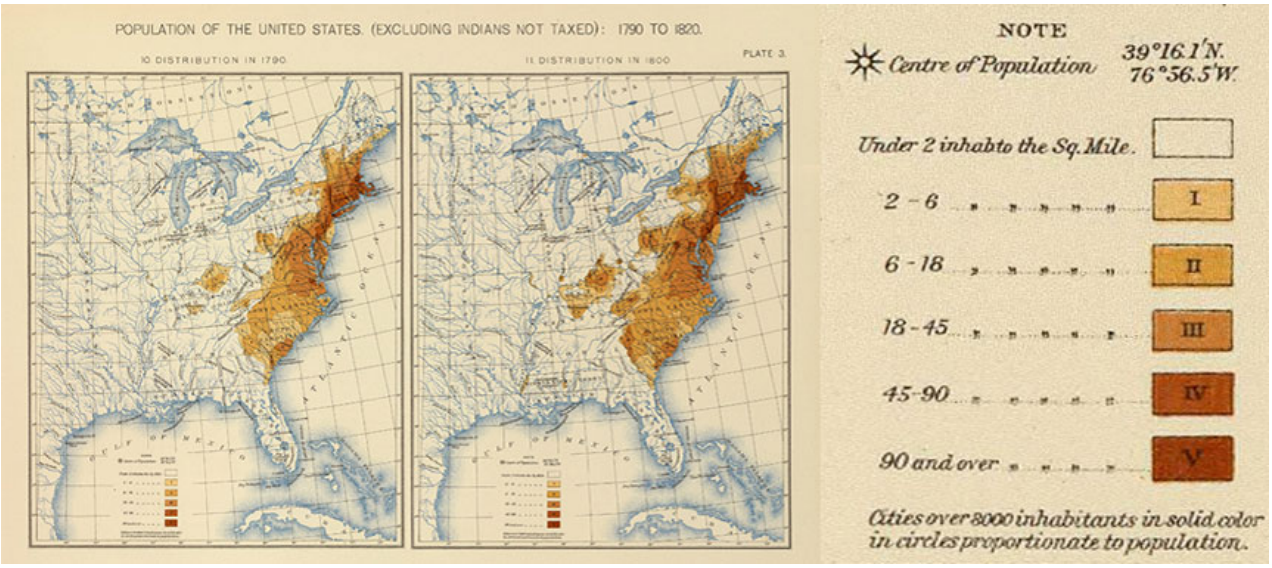
Apportionment and Population Density – Maps of the Early U.S.

Description:

In this activity, students will examine population density (people per square mile) maps constructed using census data from the 1790 Census and 1800 Census to analyze its direct relationship to the distribution of power in the early years of the new nation.

Standard:

Revolution and the New Nation (1754-1820s) Standard 3:The institutions and practices of government created during the Revolution and how they were revised between 1787 and 1815 to create the foundation of the American political system based on the U.S. Constitution and the Bill of Rights



Activity Instructions for Students

Apportionment is one of the most important functions of the decennial census. Apportionment measures the population so that seats in the U.S. House of Representatives can be correctly apportioned among the states. The basis for apportionment is called for in Article 1, Section 2 of the Constitution:

“Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, **according to their respective Numbers,** which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons.” *

The two historic maps featured in this activity depict the population density of the states and territories in 1790 and in 1800. **Population density** is the number of inhabitants (people) per square mile and in the two maps, areas of darker shading indicate a higher population density. Between 1790 and 1800, the total population of the United States grew from 3.9 million to 5.3 million people. The first Congressional **reapportionment** occurred in 1800 because of this growth. Reapportionment is the redistribution of seats based on population change according to the census. At a glance, these two statistical maps of population density show where this rapid growth occurred, and where extra representatives were added to the House of Representatives based upon census results.

* Emphasis added by Statistics in Schools.

Activity Assessment

1. What do areas shaded with the darkest brown on the maps signify? What do the white areas signify?

The areas shaded with the darkest brown on the maps signify areas with the highest population density (90 people or more per square mile). The areas in white signify areas with the lowest population density (under 2 people per square mile).

2. According to the maps most densely populated areas, name two states or territories with areas of the highest densely populated (90 people and over per square mile) in 1790 or 1800.

Students should name two among Virginia, Pennsylvania, New York, Connecticut, Massachusetts.

3. Choose a state illustrated on the 1790 population density map. For that state, discuss:

a. How that state's population density compared to other states around it on the 1790 map.

b. How that state's population density changed between 1790 and 1800 and how the map makers illustrated that change.

Students should interpret the maps to state that areas with darker shading represent more heavily populated areas. Additionally, students should be able to describe a growing population density for almost all areas depicted on the map, indicated by darker shaded areas in the 1800 map replacing lighter shaded areas from the 1790 map.

4. What regional patterns in population density are evident in 1790 and 1800?

Students should point out that population density grew for almost all areas depicted on the map between 1790 and 1800, as indicated by the fact that darker shading replaced lighter shading in almost all areas of the map. Additionally, some of the regions which were left white or blank in the 1790 map were replaced with shading by 1800, indicating an increase in population density from under 2 people per square mile to at least 2 – 6 people per square mile. Students might also point out that areas along the coast line and other waterways consistently show darker shading and therefore higher population density.

5. Which states likely gained or lost Congressional representation between 1790 and 1800, based on the changing population density illustrated in the maps?

Students could point out individual states that they believe gained or lost seats. They could also point out that given the pattern of population density illustrated on the map, it is likely that the majority of states depicted gained seats, which is the case. The actual results from changing Congressional representation between 1790 and 1800 appear in the table below:

State	Number of voting reps 1789 (determined by the Constitution)	Number of voting reps 1790 (determined by 1790 Census)	Number of voting reps 1800 (determined by 1800 Census)	Change from 1790 to 1800
Connecticut	5	7	7	=
Delaware	1	1	1	=
Georgia	3	2	4	+
Kentucky	-	2	6	+
Maryland	6	8	9	+
Massachusetts	8	14	17	+
New Hampshire	3	4	5	+
New Jersey	4	5	6	+
New York	6	10	17	+
North Carolina	5*	10	12	+
Ohio	-	0	1	+
Pennsylvania	8	13	18	+
Rhode Island	1*	2	2	=
South Carolina	5	6	8	+
Tennessee	-	1	3	+
Vermont	-	2	4	+
Virginia	10	19	22	+

*** North Carolina and Rhode Island both ratified the Constitution after Congress had already met for the first time and thus elected representatives too late to be included in the 1st United States Congress.**

6. Did the framers of the Constitution choose the right amount of time between censuses to collect data on the nation (10 years)? What were some of the advantages and drawbacks of choosing that particular timeframe?

Students' responses will vary, but should touch on certain themes. Given the rapidly changing population of the time, students could successfully argue that 10 years was too short, too long, or an appropriate amount of time to wait between conducting census. Additionally, students might touch on the themes of the cost and effort around conducting a census, as well as the valuable nation-building statistics which were obtained from those efforts.

Teacher's Notes

Learning Objectives

- Students will be able to make comparisons about the population densities of states and territories in 1790 and 1810.
- Students will be able to analyze the relationship between the population density and the apportionment of power and representation among the states in 1790 and 1810.
- Students will be able to discuss the potential for changes in the population density and the importance of the census to detect and document those changes for reapportionment purposes.

Blooms Taxonomy

Analyzing

Instructions for Teachers

Before this Activity

Have students read the "Activity Instructions for Students" as an introduction and basic background to the activity.

Introduce the context of the historical population density maps to students. A few notes are provided here. Provide as much or as little of the following background as is appropriate for your students.

Explain that as federal marshals collected census data, people's names and addresses were compiled by the federal government and into summary statistics tables. At the time, each district court had a marshal, thus providing federal geographic coverage for the entire country. Marshals and their assistants provided local representation for the federal government in their districts, which qualified them at the time to carry out the first enumeration. At the time, each marshal was required to post the results of their enumeration in two public places. This served as an early version of quality control as households could check their information had been recorded properly and make adjustments as necessary.

Review with student how census results could determine an increase (or decrease) in power or resources for a geographic region through the process of reapportionment. Refer to the Student Instructions as necessary.

Explain that the apportionment methods Congress used in 1790 versus today are different. Congress ended the practice in 1910 of adding a member for every gain of 30,000 in population. Therefore, a population density increase in 2013 would not have the same effect as it did in 1790. For more information on the history of apportionment in the U.S., see the page for Congressional Apportionment – Historical Perspective.

During this Activity

Have students examine the statistical maps of 1790 and 1800 Population Density that were produced in the 1898 *Statistical Atlas* of the United States published by the Census Bureau.

Note that in 1898, Henry Gannett, the geographer of the U.S. censuses of 1880, 1890, and 1900, used the "dasymetric" approach to mapping the contours of population density. The dasymetric map is a type of thematic map that divides and interpolates a mapped or statistical area into zones or areas of similar value. In these examples, similar values of population density are indicated by shades of brown.

These maps show the results from the 1790 and 1800 census by calculating the ratio of inhabitants (persons) per square mile (i.e., divide the total population of an individual county by the total number of square miles within that county).

Have students discuss or respond to the prompts in the "Activity Assessment" section. This can be done as a whole class, in small groups, or in written individual format.

After this Activity

Review students' responses to the "Activity Assessment" prompts, addressing any misconceptions or mistakes as you review.

Review the major themes of the activity – the crucial role that population and population growth played in determining how Congressional representation was established and adjusted.

Optional Activity Extension

Have students view and discuss the video "The U.S. Census and the Amazing Apportionment Machine" and how it relates to the activity as well as the historic population density maps from 1790 and 1800. Discuss how reapportionment divisors and enumeration areas have changed since 1790.